



**INFLUENCE OF SUPPLIER SELECTION CRITERIA ON PERFORMANCE OF MANUFACTURING COMPANIES IN KENYA**

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### ABSTRACT

*The study aimed to link supplier selection criteria to the performance of manufacturing firms in Kenya. Specifically, the focus was on financial status evaluation, technical capability evaluation, supplier's capacity evaluation and suppliers' culture and how they influenced performance of manufacturing firms. The study focused on suppliers' financial status, technical capability, capacity and culture evaluation. The variables were motivated by the Lean Supplier Competence Model. The study adopted a descriptive survey design. The target population was the manufacturing firms registered by the Kenya Association of Manufacturers by June 2017. Yamane formula was used to determine a sample size of 87. The head of procurement functions from each firm was considered for the study. Quantitative primary data was used for analysis. The findings revealed that supplier evaluation criteria had a positive and significant influence on performance of manufacturing firms in Kenya. All the four variables positively and significantly influence performance. The study recommended that manufacturing firms operating in Kenya should aim to enhance their financial status evaluation practices so as to record an improvement in performance because financial status evaluation helped establish whether the supplier can have continuity in supply before being bankrupt. Some of the financial indicators to be evaluated were credit worthiness, level of financial accountability and financing mode. The study recommended that manufacturing firms operating in Kenya should aim to enhance their technical capability evaluation practices so as to record an improvement in performance. Some of the technical capabilities to be evaluated in a supplier were labour force capacity, technical knowledge of operation and staff level of expertise so as to enhance quality production by competent staffs. The study recommended that manufacturing firms operating in Kenya should aim to enhance their supplier capacity evaluation practices so as to record an improvement in performance. There is a need to evaluate the supplier's capacity ranging from the production capacity, storage capacity as well as distribution capacity so as to avoid shortages that may arise due to lack of enough capacity.*

**Key Words:** Financial Status Evaluation, Technical Capability Evaluation, Supplier's Capacity Evaluation, Suppliers' Culture

## INTRODUCTION

The performance of manufacturing firms in Kenya is mixed. Statistics from Kenya Association of Manufacturers have shown that firms announced plans to shut down their plants and shift operations to Egypt as a result of reduced profits (KAM, 2016). Cadbury Kenya closed down its manufacturing plant in Nairobi by the end of October 2014 (RoK, 2014). In the full-year to September 2013 results, Eveready's net profit fell 58.7 per cent to \$493,237, from \$784,783 the previous year. Its production capacity dropped to 50 million units annually, down from a previous high of 180 million per year mainly caused by contingencies (RoK, 2016). Tata Chemicals Magadi on the other hand scaled down its operations by closing down its main factory (Kandie, 2014).

Scholars argue that performance of manufacturing firms can be improved through better such supply chain practices such as having a proper supplier evaluation (Lysons *et al.*, 2008). For manufacturing firms to perform well it is important to select suppliers who are reliable and are able to meet the companies expectation in supplies requirement. There are certain qualities that should be included in the evaluation process. Dobler (2010) while quoting a definition of Professor Wilbur England of Harvard University stated that a good supplier should be one who is at all times honest and fair in his dealing with the customers, his own employees, and himself and one who has adequate plant facilities.

Selection of Suppliers is a critical executive decision that can influence the likelihood of the organization realizing its corporate objectives. The supplier selection criteria involves extensive evaluation strategies that aim at arriving at the utmost best choice in the list of hundreds or even thousands available options. Ultimately, the decision settled on a supplier(s) will reflect on the quality of product

produced at the end of a manufacturing cycle (CIPS, 2013). Organizations are constantly under pressure to find ways to cut material and production costs through engaging in strategic supplier selection process and evaluation (Gallego, 2011).

According to Nadir (2012) supplier evaluation is perceived as a tool which provides the buying firm with a better understanding of “which suppliers are performing well and which suppliers are not performing well” but studies reveal that even after having carried out an in-depth supplier evaluation plus appraisal coupled with the enactment of legal procurement statutes and other policies on supplier evaluation, inefficiencies still exist ranging from supplies being made halfway or even termination of contracts before conclusion.

Nagao (2012) examined the criteria of supplier selection and trends in component outsourcing within and across regions in China and placed emphasis on the importance of the process in the Auto Mobile sector. In Britain and most developed countries, effective supplier evaluation approach allows planners, procurement officers and contract managers to position each contract systematically and determine whether appraisal is required. Those falling in the bottleneck and strategic categories have higher risk and should therefore be properly appraised and checked (Wright, 2009).

In Thailand, supplier selection is very critical in the motor service industry. Maruhashi (2010) and Jens (2014) looked at supplier selection in the Thai automotive industry, focusing in particular on the vertical integration decisions of assemblers, but their analysis is largely of a qualitative nature and established the importance of the process in the industry.

Clothe manufacturers in South Africa view suppliers as critical resources for the textile/apparel sector. Their qualities, strategies and abilities affect the entire sector (Pikousova and Prusa, 2013). Selection

of the supplier plays a role in profitability and companies should pay attention to the selection when awarding contracts (Pikousova and Prusa, 2013).

Ongwae (2011) emphasizes the need for careful and systematic evaluation of the suppliers of any organization to measure their likely performance before they are given authority to deliver. While Farah (2014) on the importance of supplier relation advised that repeat orders should be made to those who perform as this will raise greater performance and reduce shortage in supply. Poor source selection may lead to oil companies to lose billions of shillings. However proper selection of suppliers saves a lot of wastage of the company's funds that could as well be used in beneficial things.

Kenya's manufacturing sector has a great potential on promoting economic growth and competitiveness in the country like Kenya (Haron and Chelakumar, 2012). It is the third leading sectors contributing to GDP in Kenya. The sector has experienced the fluctuations over the years under different financial conditions. It experienced the lowest real GDP growth rates in 2008 to 2009 as 1.7 percent in 2008 and improved to 2.6 percent in 2009 (East African Community Facts and Figures – 2010, March Issue, 2011). In the financial year 2010, the real GDP growth rate was 5.6 percent, revealing the improvement (EACF, 2011). The lack of demand from the domestic market caused depreciation in Shilling and international demand was largely hit by global financial crises which caused the slower growth in the manufacturing sector. In terms of gross domestic product (GDP), the share of manufacturing sector maintained in the last 10 years from 2000-2001 as 10 percent to 2009-2010. On the other side, investment a "booster" of an economy, according to (EACF, 2011) has shown a decreasing trend from 2008 to 2010.

## **Statement of the Problem**

The performance of the manufacturing sector as a whole in Kenya has been affected by use of obsolete supply chain management practices and technologies with poor state of physical infrastructure, limited research and development, poor institutional framework, and inadequate supply chain evaluation, technical, and procurement skills. Statistics from World Bank show that Kenyan manufacturers of large scale firms have registered stagnation and declining profits for the last five years due to a turbulent operating environment (WB, 2014). It is estimated that manufacturing companies have lost 70 per cent of their market share in East Africa largely attributed to contingencies arising from among others improper management of supply chain (RoK, 2014).

Manufacturing output from Kenyan firms has cumulatively been underwhelming in the past few years. Low industrial output has faced stiff competition from cheap imports of similar line of products (Kamotho, 2014). High operational costs have been attributed to inefficient supplier selection processes which are exposed to abuse and massive corruption, leaving the manufacturing firms incurring more expenses in sourcing inputs thus left with no choice but to charge much more on their products. This has slowed down industrial output to the extent of forcing some firms to close shop or move to other countries. Jens (2014) was keen on the importance of supplier selection, concluding that it directly impacted on the organizational operational costs. Ogden *et al.*, (2008) argued that the failure of suppliers to meet the deadlines and supply materials as and when required leads to huge losses in the supply chain operations. Murigi (2014) argues that supplier selection criteria have a direct correlation to the overall performance of the procurement process with 57.1% of the performance of the procurement process being directly determined by the supplier evaluation.

The assertions by Murigi (2014); Lysons *et al.* (2008) that supplier selection criteria has a direct correlation to the overall performance contributing 57.1% of the performance of the procurement process and hence the overall organizational performance, led to a need to establish the influence of supplier selection criteria on performance of manufacturing firms in Kenya.

### **Objectives of the Study**

The main objective of this study was to evaluate the influence of supplier selection criteria on the performance of manufacturing firms in Kenya. The specific objectives were:-

- To establish the influence of financial status evaluation on the performance of manufacturing companies in Kenya.
- To evaluate the influence of technical capability evaluation on the performance of manufacturing companies in Kenya.
- To analyze the influence of suppliers capacity evaluation on the performance of manufacturing companies in Kenya.
- To examine the influence of suppliers culture evaluation on the performance of manufacturing companies in Kenya.

## **LITERATURE REVIEW**

### **Theoretical Review**

#### **Transaction cost economics**

Transaction cost economics theory was popularized by works of Oliver Williamson in the late 70's. The theory was coined in line with Coase's 1937 publish that it wholly derived from the nature of the firm (Hardt, 2010). The theory of transaction cost economics was driven by the objective of profit maximization. The basic assumption underlying the theory suggests that relationships between buyers and suppliers lower transaction costs and facilitate investment in relation-specific asset (Hardt, 2010). This makes reference to the relative cost of using

markets as opposed to firm controlled resources for determining the resource allocation decisions.

In the context of sourcing decisions, the firms source internally to minimize costs. This will prevent the supplier from taking for granted on the buyer side. On the other hand, if the supplier can produce a lower cost compared to sourcing internally, then the buyer should choose for external sourcing (Hsu *et al.*, 2012). However, transaction costs do not depend duly on the quantity or variety of the products but also the supplier ability in fulfilling the buyer expectations (Hsu *et al.*, 2012). It is found that opportunism will not be a concern over highly specific assets if there is mutual beneficial relationship between the buyer and suppliers (Irwin *et al.*, 2016).

### **The Lean Supplier Competence Model**

The Lean Supplier Competence Model was developed by Marks (2007). The model evaluates the supplier against the five categories that supports the Lean techniques of Kaizen – continuous improvement. The Lean Supplier Competency Model explains how organizations interact in the five areas of competency where there is varying degrees of performance ultimately to achieve lean organizational operations. Each category is broken down into specific "behaviors" or ways the company and the supplier interact with each other. These behaviors are rated from a "1" as "Less Lean" to a rating of a "5" as "More Lean."

The five categories and 'specific behaviors' of the supplier to be evaluated are quality ( Part specification, reliability and consistency, Preventative and Predictive Maintenance, Corrective Action Process) ; Delivery (Lead Times, Delivery Performance, Location of Supplier) ; Financials (Buyer's Cost of Quality, Supplier's Cost of Quality, Supplier's Infrastructure and stability, Buyer's Order Quantity Requirements) ; Operational Excellence (Vision and Mission, benchmark,



Supplier's Company Culture, Supplier's Commitment to Waste Elimination) ; General Performance Measures (Training, Design, support services, capacity, reporting) (Marks, 2007). This measurement allows a company to determine placement of business based on common values and common strategic goals. Using this model, as the business philosophies of the company and the supply base draw together to eliminate waste, the natural result is a reduction of cost to the supply chain and to the ultimate customer (Xu, 2007).

The theory hinges on all the independent variables that is financial status, technical, environmental evaluation and commercial evaluation. The theory indicates these factors among the key factors to be evaluated in a supplier. This theory is relevant in supplier selection since it advocates for working together. It is particularly important for an organization that is intending to foster lasting supplier relationship and those intending to build strategic partnership with suppliers.

### **Resource Based View Theory**

The Resource Based View model is widely credited to have been pioneered by Penrose in 1959 while working in the project, 'The theory of the growth of the firm' (Huang, 2012). The RBV theory conceives the firm as a broad collection of resources within the firm. Examples of firm resource include; brand name, in-house knowledge of technology, employment of skilled personnel, trade contact, machinery, efficient procedures and capital. As such, both tangible and intangible assets are considered a firm's resources. However, valuable resources that are commonly shared by the majority of firms are incapable of being either a competitive advantage or a sustainable competitive advantage. Only resources that other firms cannot easily develop, possess and obtain would become costly-to-imitate resources. Finally, non-substitutable resources refer to the resources that

have no strategic equivalents, such as firm specific knowledge or trust-based relationships (Huang, 2012).

Barney's work in the 90's extended the RBV theory to incorporate the concept of sustainability into the strategic management of a firm (Huang, 2012). Similarly, Grant (2011) argued that durability, transparency, transferability, and replicability are the four major attributes of resources determining sustainable competitive advantage. Whereas Amit and Schoemaker (2013) suggested that resources should meet the following eight criteria: complementarity; scarcity; low tradability; inimitability, limited substitutability; appropriability; durability; and overlap with strategy industry factors. RBV theory suggests that the resources that are inherent in a firm are the sources of competitive advantage, and the value of a firm's internal resources can be enhanced and sustained, if they meet the above mentioned criteria.

Huang (2012) citing from Barney works suggested that a firm's core resources and capabilities are the important tools for the organization in gaining and preserving sustainable competitive advantage. Thus, the needs of selecting supplier were not only to meet the buyer needs in term of products and performance but also in alignment with goals and objectives of both parties (Hsu et al., 2006). According to Huang (2012) definition, resources refer to all assets, capabilities, organizational processes, firm attributes, information and knowledge controlled by a firm that can improve its efficiency and effectiveness. The RBV theory informs the manufacturing firm's importance of valuing its processes and resources as it forms part of their competitive advantage. Similarly, the approach through which an organization takes in formulating its supplier selection criteria ought to consider the process as part of critical resource that defines their marketability.

## Grey System Theory

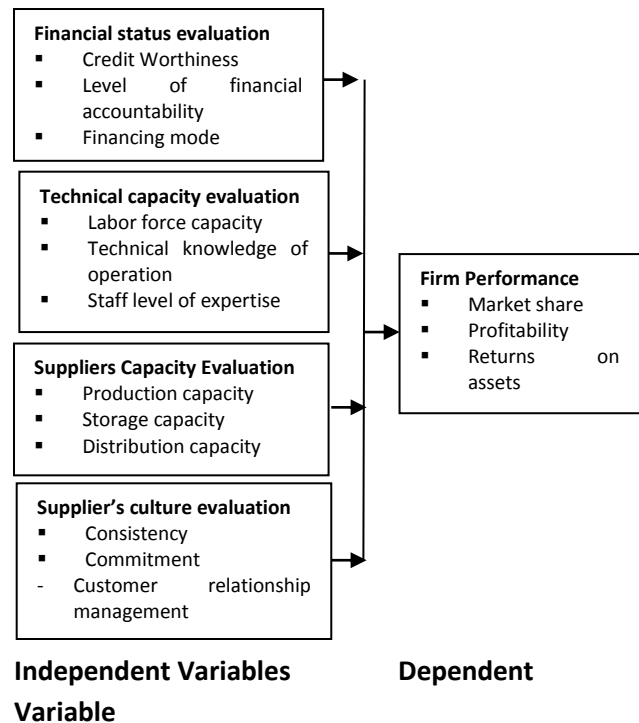
Grey system theory was first introduced in early 1980s by Deng (1982). According to Grey System Theory, in a practical business environment, in most instances, supplier evaluation takes place in an environment with less than perfect information. As such, there is some level of uncertainty in the decisions related to supplier evaluation. In such an environment, it is important to develop certain indicators or criteria; qualitative or quantitative that the supplier can be subjected to before selection. From this theory, the grey correlation analysis model with seven progressive steps was developed (Zou, 2008). These steps include; grey generation aimed at gathering information on grey aspects, grey modeling done to establish a set of grey variation equations and grey differential equations, grey prediction aimed at achieving a qualitative prediction, grey decision, grey relational analysis and grey control (Tsai, 2003).

The theory of Grey System considers the following factors in deciding on the best supplier; Existence of key factors important to the buyer, the numbers of factors are limited and countable and can be directly attributed to potential suppliers, in dependability of factors and factor expandability. The theory applies the principle of series comparability to generate a grey relation. An evaluation matrix may be developed to facilitate this process. The best supplier is selected by choosing a goal and weighting the values of all evaluation factors based on the characteristics of materials to be sourced based on demand patterns (Zou, 2008). In a supplier selection environment, this theory can be applied during evaluation of critical performance areas by the procuring entities.

This theory has relevance to the study as it surrounds the whole process of supplier selection as it mainly provides a criteria and procedure for selecting a supplier. The theory has a practical and

positive benefit of improving effectiveness in the selection process because it provides a criteria for selecting the factors to look for in a supplier and when a good supplier is selected, this positively affects supply chain performance which affects final performance of the organization.

## Conceptual Framework



**Figure 1: Conceptual Framework**

## Financial Status Evaluation

Financial evaluation is the process of evaluating businesses, projects, budgets and other finance-related entities to determine their performance and suitability (Investopedia, 2016). At the heart of supplier selection process it's highly critical of the financial aspect. Jens (2014) opined that in the course of considering supplier choices, it's fundamentally valuable to direct priority towards the options that demonstrate strong financial base. The firm should utilize financial evaluation mechanism that has dynamic algorithm to capture vital financial parameters such as financial accountability, credit worth, capital base, internal

audit capacity assessment and financial records management. This will be critical as the firm will be in a position to determine whether the supplier will be able to deliver on the agreement without any likelihood of experiencing financial pitfall.

Risk assessment is a central factor each time investors prepare to make certain investment decisions (Gallego, 2011). Decisions around the selection of suppliers should be approached as an important investment decision, after all a supplier is a silent partner with the organization. Financial health is an important indicator on the length of the partnership. Parameters such as credit worthiness will help in demonstrating the capacity of the supplier in honoring their credit obligations (Jens, 2014). In a situation where the credit information is not clear, the firm will be exposed to many operational uncertainties during the period of partnership. Likelihood of occurrences include, the supplier opting to manipulate the inputs supplies in order to cut costs, which may come to bite the supplier in the end in terms of quality of the products they manufacture. Low quality products are undoubtedly a loss in competitiveness which will result in the market depletion finally hurting the commercial value of the firm (Mann, 2015; Huang; 2012, Gallego, 2011). It's in the interest of the firm objectives to set a high financial health threshold for all its potential suppliers (Jens, 2014).

### **Technical Capability Evaluation**

A technical evaluation is an in-depth assessment and validation of an organizations technical capacity in delivering inputs for use by manufacturing companies in production of new products (Tech-Evals, 2014). A technical evaluation is an appropriately written narrative assessment of a suppliers approach and technical capability to accomplish the firm requirements. The technical evaluation should examine and document the analysis of the proposed labor, materials, and other

pertinent data (Jens, 2014; Mann, 2015). The objective of the technical evaluation is ultimately to assist the firm in determining that the proposed cost/price is fair and reasonable (Gallego, 2011). Technical evaluation should lay down the capacity of the supplier in terms of technical knowhow in delivering on the requirements as set out by the firm. Parameter critical in this phase include an assessment of the labor capacity, quality of service, efficiency in delivery and the speed of delivery (Tech-Evals, 2014).

The firm should be highly proactive whenever undertaking assessment test to predetermine the technical capacity among a number of options (Jens, 2014). The parameter on the capacities of the labor force should be reinforced with a thorough background checks on the validity of the listed individual capacities. A clear demarcation and cross check on personal profiles should be undertaken in line with existing databases of professional bodies as a verification strategy to certify the individual capacities (Belton and Steward, 2012). The technical capacity should form a basis of value addition to the partnership once officially signed, wherein the firm can benefit from skill change amongst their own internal staff. Finally on the basis of quality, the standards should be set at the level acceptable as global benchmark, in order to enhance the firms competitive advantage (Belton and Steward, 2012; Jens, 2014).

The British Standards definition of quality is „the totality of features and characteristics of a product of a product or service that bear on its ability to satisfy given need“ (CIPS, 2012). A buyer needs to assess and ensure that a supplier has robust systems and procedures in place for monitoring and managing its outputs. The systems for the detection and correction of defects are called quality control while those for prevention of defects are known as quality assurance and a buyer needs to check



whether the supplier has these in place (Lysons et al., 2014).

### **Suppliers Capacity Evaluation**

Supplier capacity evaluation is a management activity whose primary aim is acquiring information to analyze and to manage supplier relationships and supply situations, (Dobos *et al.*, 2012). The process entails the simultaneous consideration of a number of critical supplier performance features that include price, delivery lead-times, and quality (Narasimhan *et al.*, 2001.) The importance of supplier selection is evident from its impact on firm performance and more specifically on final product attributes such as cost, design, manufacturability, quality, and so forth.

Due to the high costs involved in the appraisal processes Lysons et al., (2008) suggests that appraisal should be used in the following situations: purchase of strategic high profit, high risk items, where potential suppliers do not hold accreditation, purchase of non-standard items, expenditure on capital items, global sourcing, outsourcing, placing of construction and similar contracts, when entering into JIT arrangements among others. Suppliers may be appraised in many ways: financial ability, quality, production facilities, environmental issues, supplier's organizational culture, and cost factors production capacity and employee capabilities among others (Lysons et al., 2008; CIPS, 2012).

### **Suppliers Culture Evaluation**

Alvesson (2012) defines organizational culture as a complex set of values, beliefs, assumptions, and symbols that define the way in which a firm conducts its business. Lahiri and Kedia (2009) argue that organizational culture has all-encompassing effects on a firm because it does not only define who this firms relevant employees, customers, suppliers, and competitors are, but it also defines how this firm interacts with its supply chain partners. Supplier's performance criteria normally

apply when evaluating employees' work based performance to evaluate the achievement of the organizational goals as well as when developing strategic plans for the organizations' future performance (Ittner & Larcker, 2012).

Supplier's culture consists of empirically accessible elements such as behavioural and attitudinal characteristics which do not directly lead to organizational performance as consists of shared perceptions. Abdulkadir, Takow, Abdifitah and Osman (2014) posit that academic achievement positively influences competitive culture, entrepreneurial culture and consensual culture. Similarly, Fakhar, Iqbal and Gulzar (2014) concurs that customer service, risk-taking and communication system, participation, reward system and innovation greatly impacts on the on organizational job performance.

### **Performance of Manufacturing Firms**

The concept of organizational performance is based upon creation of value according to Carton (2011). An organization is the voluntary association of productive assets, including human, physical, and capital resources, for the purpose of achieving a shared purpose. Those providing the assets will only commit them to the organization so long as they are satisfied with the value they receive in exchange, relative to alternative uses of the assets.

Verbeeten and Bonns (2012) show that so long as the value created by the use of the contributed assets is equal to or greater than the value expected by those contributing the assets, the assets will continue to be made available to the organization and the organization will continue to exist. Verbeeten and Bonns (2012) further argue that the major objective of every business enterprise is to consistently outperform competition and deliver sustainable superior returns or values to the owner.

The organization's performance is measured against standard or prescribed indicators of effectiveness,

efficiency, and environmental responsibility such as, cycle time, productivity, waste reduction, and regulatory compliance as indicated by Adeyemi and Salami (2010). In order to improve operational efficiency an organization has to measure both the input and the output side of the inventory management.

### **Empirical review**

#### **Financial Status Evaluation**

Pamela (2013) carried a study on the determinants of supplier selection and evaluation in Pakistan Telecom industry. The study adopted explanatory and non-experimental research design to fulfill the research objectives. The study applied panel data model (fixed effects) based on the outcome of Hausman specification tests. Data was analyzed using SPSS. The study findings revealed that supplier financial capacity expertise is one of the key factors which determine the eventual performance of both the supplier and procurement performance. The study findings also revealed a high correlation between the financial capacity of supplier and ability of supplier to deliver enhances procurement performance.

Wangui (2014) carried a study to establish the strategic supplier related factors affecting the performance of the procurement function in the service industry. The study attempted to establish the effect of financial stability, past performance and reliability of suppliers on the performance of the procurement function. The study used a case research design. Data was collected using a questionnaire with both open and close ended questions. Statistical package for Social Sciences (SPSS) was used to analyze collected data. The study findings revealed that financial stability of suppliers; past performance and reliability of suppliers have a significant effect on performance of procurement function. The study recommended that suppliers should be evaluated to establish their financial

stability, their past performance and reliability before awarding them with contracts to supply goods or services.

#### **Technical Capability Evaluation**

Mwikali and Kavale (2012) conducted study on technical capability, quality assessment, service levels and risk factors involved on evaluation of suppliers. A cross sectional survey design was used in the study. Primary data was collected using interview schedules and secondary data was generated from records, books, journals, published and unpublished research materials. Data was analyzed using SPSS. The study findings indicated that supplier selection should be done by experts who are knowledgeable and have expertise to conduct the exercise professionally since supplier selection is a process vulnerable to personal and political interference especially in the public sector.

Kiprotich and Okello (2014) conducted a study to determine the effect of supplier evaluation on performance of procurement function of Public Universities. The study used cross sectional survey and data was collected using structured questionnaires that were administered through drop and pick technique. The collected data was analyzed through SPSS version 21. The findings of the study revealed that suppliers' quality commitment and suppliers' competence have significant effect on performance of procurement of procurement function of public universities campuses in Kericho County. The findings of the study recommended that experts who are knowledgeable and have expertise should be consulted in conducting supplier evaluation.

Pirzadeh, Hamid and Sukati (2013) carried a study on supplier's capabilities and its influence on competitive advantage in automotive industry. Primary data was collected from 117 survey samples at Proton's suppliers and analyzed. The study results confirmed that a positive correlation

exists between collaboration in NPD and Proton suppliers' capabilities. The study findings also indicated that a positive and significant relationship that exists among the three supplier capabilities which are production, manufacturing, and research and development (R&D).

### **Suppliers Capacity Evaluation**

A study done by Kamenya (2014) on the relationship between supplier evaluation and performance in large food and beverage manufacturing firms in Nairobi revealed that there is a positive relationship between performance and supplier evaluation criteria. The study illustrated that organizations need to consider the environmental friendliness of the supplier, employee capabilities of the supplier and price factors which are significantly influencing performance of the procurement. Other factors including financial stability, quality issues, and supplier's organizational culture, production capacity of the supplier and preference and reservation were found to have no significant effect on performance.

In their study, Mwikali and Kavale (2012) seeking to identify the factors affecting supplier selection illustrated that; cost, technical capability, quality assessment, organizational profile, service levels, supplier profile and risk factors are the major factors affecting selection of suppliers. Their study concluded that a cost criterion is a key factor affecting supplier selection for it dictates among many elements, the profit margins. Technical capability, quality of materials and the profile of the supplier are also closely considered.

Aseka (2010) did a study on supplier selection criteria and performance of manufacturing firms listed in the Nairobi Stock Exchange. The study found a positive relation between effective supplier selection and organization performance. It illustrated that, firms considered quantitative

factors such as the suppliers' technical expertise, commitment to quality and ability to meet delivery due dates in supplier selection than qualitative factors such as suppliers' willingness to share confidential information.

Mburu et al. (2015) conducted a study that entails assessing the effect of supplier operations (supply capacity) on supply chain performance. Based on the findings derived from data collected from a sample of 153 experts from manufacturing firms, it was found that the firms that took into consideration the capacity of their suppliers were regarded with increased supply chain performance.

### **Suppliers Culture Evaluation**

A study by Dorman (2010) on the factors influencing employee performance in Britain revealed that organizational culture that embraced job satisfaction often declined with increase in employees' level of education. Organizational culture is the set of shared values, beliefs, and norms that influence the way employees think, feel, and behave in the workplace (Schein, 2011). This suggests that employees' level of education negatively impacted on job satisfaction. Wesonga and Nyongesa (2011) on the impact of organizational culture on performance in learning institutions reported that every organization had a culture which influenced people's attitudes and behavior at work.

Trevor *et al* (2013) conducted a study, which focused on establishing the extent to which supplier culture affect the performance of an organization's supply chain. Ideally, the key aim of the study was to investigate the extent to which cultural fit between the buyer and its strategic supplier influence performance. The study found a positive correlation between buyer-supplier cultural fit and a firm's supply chain performance. The findings of the study recommended the need for managers to

pay considerable attention to the cultural evaluation of supplier during the selection process.

Waraporn (2012) in the study of the impact of supplier development on supplier performance investigated the role of buyer-supplier commitment in supplier performance improvement in Thailand. The study revealed that the buying company would implement the supplier development strategies by focusing on buyer-supplier relationship commitment for performance improvement. The authors therefore recommended that managers should place strong emphasis on developing specific relationship with suppliers. The buying firm expected to develop the key suppliers who have long-term relationship with a sharing of information and benefits including joint problem solving. However, the study did not explore the effect of supplier development on the buyer firm's performance.

## RESEARCH METHODOLOGY

According to Green and Tull (2009), a research design is the specification of methods and procedures for acquiring the information needed. A descriptive survey design plays a role and attempts to collect data from members of a population in order to determine the current status of that population with respect to one or more variables (Mugenda and Mugenda, 2003). A descriptive survey design was appropriate since it enabled collection of data over a number of manufacturing firms. The study targeted the head of procurement departments in the manufacturing firms. Kenya Association of Manufacturers has listed 708 members in Kenya as at June 2017. The target sample size was 87 manufacturing firms selected proportionately. The study used primary data, which was collected through a questionnaire. After obtaining the quantitative data through closed ended questions questionnaires, it was analyzed using descriptive and inferential analysis using SPSS

Version 22, computer software for analysis. The multiple regression models was as laid below.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = Performance of manufacturing firms

X<sub>1</sub> = Financial Status Evaluation

X<sub>2</sub> = Technical Capability Evaluation

X<sub>3</sub> = Suppliers Capacity Evaluation

X<sub>4</sub> = Suppliers Culture Evaluation

$\varepsilon$  is error term

$\beta_0$  represents the constant

$\beta_{1,2,3,4}$  are regression coefficients

Data representation was done through tables, graphs, figures and charts.

## RESEARCH FINDINGS

### Descriptive Findings and Analysis

The respondents were asked to rate statements on each of the variables of the study on a scale of 1 to 5 ranging from strongly disagree to strongly agree. The percentage response of the respondents on each scale per variable is presented in the section.

### Financial Status Evaluation

The first objective of the study was to establish the influence of financial status evaluation on the performance of manufacturing companies in Kenya. The study sought to find out the level of respondent's opinion on financial status evaluation. The summary of responses as shown in Table 1 showed that majority, 77.10%, of all the respondents agreed that the suppliers credit worthiness was evaluated before considering them for prequalification, 60% of all the respondents agreed that the suppliers level of financial accountability was evaluated before considering

them for prequalification, 74.30% of all the respondents indicated that the suppliers capital turnover was evaluated before considering them for prequalification, 57.10% of all the respondents indicated that the suppliers cash flow was evaluated before considering them for prequalification while 57.1% of the respondents also agreed that the suppliers mode of payment was evaluated before considering them for prequalification. The average mean of the responses indicated from the results was 3.73

which show that the respondents were agreeing that supplier financial status evaluation was being conducted while the standard deviation was 1.23 which indicated that the answers received were varied as they were dispersed far from the mean. The findings were consistent with Pamela (2013) who carried a study on the determinants of supplier selection and evaluation in Pakistan Telecom industry and revealed that supplier financial status was common and that it has a high correlation with performance.

**Table 1: Financial Status Evaluation**

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std Dev
The suppliers credit worthiness is evaluated before considering them for prequalification	5.7%	5.7%	11.4%	51.4%	25.7%	3.86	1.06
The suppliers level of financial accountability is evaluated before considering them for prequalification	8.6%	14.3%	17.1%	31.4%	28.6%	3.57	1.29
The suppliers capital turnover is evaluated before considering them for prequalification	8.6%	5.7%	11.4%	40.0%	34.3%	3.86	1.22
The suppliers cash flow is are evaluated before considering them for prequalification	8.6%	11.4%	22.9%	17.1%	40.0%	3.69	1.35
The suppliers mode of payment is evaluated before considering them for prequalification	5.7%	11.4%	25.7%	25.7%	31.4%	3.66	1.21
<b>Average</b>						<b>3.79</b>	<b>1.24</b>

**Technical Capability Evaluation**

The second objective of the study was to evaluate the influence of technical capability evaluation on the performance of manufacturing companies in

Kenya. The study sought to find out the level of respondent's opinion on technical capability evaluation. The summary of responses shown in Table 2 show that 65.7% of the respondents



indicated that the supplier's labor force skills were evaluated before considering them for prequalification, 77.1% agreed that the company conducts a supplier evaluation of qualifications of supplier's staff, 60% of all the respondents agreed that the company conducts a supplier evaluation of the experience of suppliers staff and 62.8% of the respondents agreed that the company conducts an evaluation of suppliers staff level of competence. It was also established that 52.0% of the respondents agreed that the company conducts an evaluation on the operational speeds of the supplier before considering them. The average mean of the

responses indicated from the results was 3.77 which show that the respondents agreed that technical capability evaluation is conducted while the standard deviation was 1.17 which indicates that the answers received were varied as they were dispersed far from the mean. The findings were consistent with Mwikali and Kavale (2012) who conducted a study on technical capability, quality assessment, service levels and risk factors involved on evaluation of suppliers and established it was a common practice for firms to engage in evaluation of the technical capability of their suppliers.

**Table 2: Technical Capability Evaluation**

Indicator	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std Dev
The suppliers labor force skills is evaluated before considering them for prequalification	5.7%	17.1%	11.4%	28.6%	37.1%	3.74	1.29
The company conducts a supplier evaluation of qualifications of suppliers staff	0.0%	5.7%	17.1%	31.4%	45.7%	4.17	0.92
The company conducts a supplier evaluation of experience of suppliers staff	5.7%	14.3%	20.0%	25.7%	34.3%	3.69	1.25
The company conducts an evaluation of suppliers staff level of competence	0.0%	14.3%	22.9%	37.1%	25.7%	3.74	1.01
The company conducts an evaluation on the operational speeds of the supplier	2.4%	17.6%	28.0%	20.2%	31.8%	3.52	1.36
<b>Average</b>						<b>3.77</b>	<b>1.17</b>

**Supplier Capacity Evaluation**

The third objective of the study was to analyze the influence of supplier capacity evaluation on the performance of manufacturing companies in Kenya.

The study sought to find out the level of respondent's opinion on supplier capacity evaluation. The summary of responses as shown in Table 3 indicated that that majority, 80% of all the

respondents agreed that the company conducts an evaluation of suppliers transport capacity, 74.3% of all the respondents agreed that the company conducts an evaluation of suppliers warehousing capacity, 65.7% indicated that the company conducts an evaluation on supplier distribution capacity while 80.0% agreed that the company conducts an evaluation on supplier Production capacity. It was also shown that majority of the respondents, that is, 94.3%, agreed that the company conducts an evaluation on supplier Storage capacity. The average mean of the responses indicated from the results was 3.83 which showed that the respondents agreed that

supplier capacity evaluation was conducted while the standard deviation was 1.06 which indicated that the answers received were varied as they were dispersed far from the mean.

The findings were consistent with the findings of a study Kamenya (2014) on the relationship between supplier evaluation and performance in large food and beverage manufacturing firms in Nairobi and established that among the key factors to be evaluated is financial stability, quality issues, and supplier's organizational culture, production capacity of the supplier and preference and reservation which positively affected performance.

**Table 3: Technical Capability Evaluation**

Indicator	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std Dev
The company conducts an evaluation of suppliers transport capacity	8.6%	2.9%	8.6%	37.1%	42.9%	4.03	1.20
The company conducts an evaluation of suppliers warehousing capacity	5.7%	8.6%	11.4%	31.4%	42.9%	3.97	1.20
The company conducts an evaluation on supplier Distribution capacity	5.7%	8.6%	20.0%	25.7%	40.0%	3.86	1.22
The company conducts an evaluation on supplier Production capacity	0.0%	8.6%	11.4%	42.9%	37.1%	4.09	0.92
The company conducts an evaluation on supplier Storage capacity	0.0%	0.0%	5.7%	51.4%	42.9%	4.37	0.60
<b>Average</b>						<b>3.83</b>	<b>1.06</b>

**Suppliers Culture Evaluation**

The fourth objective of the study was to examine the influence of supplier's culture evaluation on the

performance of manufacturing companies in Kenya. The study sought to find out the level of respondent's opinion on suppliers culture

evaluation. The summary of responses as shown in Table 4 indicated that 65.7% of the respondents agreed that the firm evaluates the supplier's commitment culture, 85.8% agreed that the company had the same guidance customs for all the employees while 62.9% of all the respondents agreed that the company was guided by values of consistency adaptability. Those respondents who agreed that the company had customer relationship management and that the company was guided by values of effective communication system were

62.9% and 60% respectively. In addition, the average mean of the responses indicated from the results was 3.87 which show that the respondents agreed that there was supplier culture evaluation among manufacturing firms in Kenya.

The standard deviation was 1.13 which indicated that the answers received were varied as they were dispersed far from the mean. The findings were consistent with Waraporn (2012) who argued that evaluation of buyer-supplier relationship commitment leads to performance improvement.

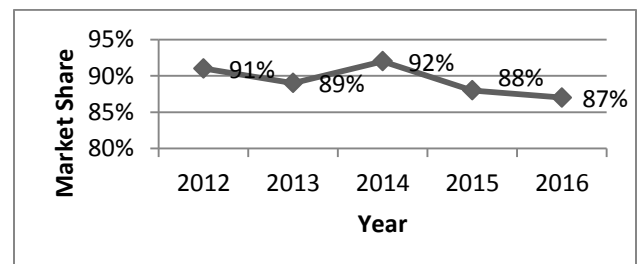
**Table 4: Suppliers Culture Evaluation**

Indicator	Strongly				Strongly		Std Dev
	Disagree	Disagree	Neutral	Agree	Agree	Mean	
The firm evaluates the suppliers commitment culture	0.0%	14.3%	20.0%	34.3%	31.4%	3.83	1.04
The company has the same guidance customs for all the employees	0.0%	8.6%	5.7%	42.9%	42.9%	4.20	0.90
The company is guided by values of consistency adaptability	2.9%	22.9%	11.4%	28.6%	34.3%	3.69	1.25
The company has customer relationship management	5.7%	8.6%	22.9%	14.3%	48.6%	3.91	1.27
The company is guided by values of effective communication system	2.9%	14.3%	22.9%	25.7%	34.3%	3.74	1.17
<b>Average</b>						<b>3.87</b>	<b>1.13</b>

**Performance of Manufacturing Firms**

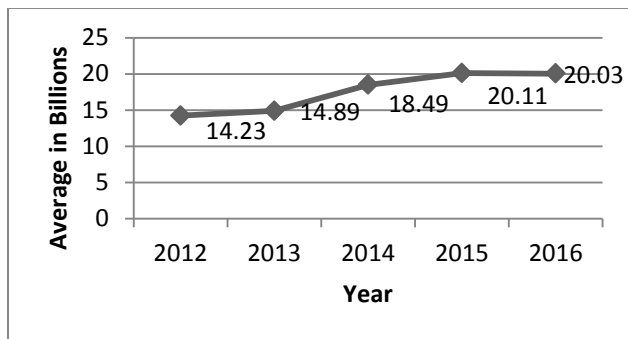
The market share in terms of the percentage of the market covered by the manufacturing firms registered under KAM was established and indicated in a trend analysis from the year 2012 to the year 2016. The results indicated unsteady trends in market share where a decrease was recorded in the year 2013 with the only increase being recorded in the year 2014. There was a decrease between the year 2014 and 2016. This was

perhaps as a result of the departure of a number of manufacturing firms such as Cadbury and Eveready from the Kenyan market (KAM, 2016).



**Figure 2: Trends for Market Share**

The profits before tax in billion shillings for the manufacturing firms was established and indicated in a trend analysis from the year 2012 to the year 2016. The results indicate unsteady trends from the year 2012 to 2016. Profits before tax steadily increased from an average of 14.23 billion shillings to 20.11 billion shillings in 2015 but it slightly decreased in 2016 to 20.03 billion shillings on average.



**Figure 3: Trends for Profits before Tax**

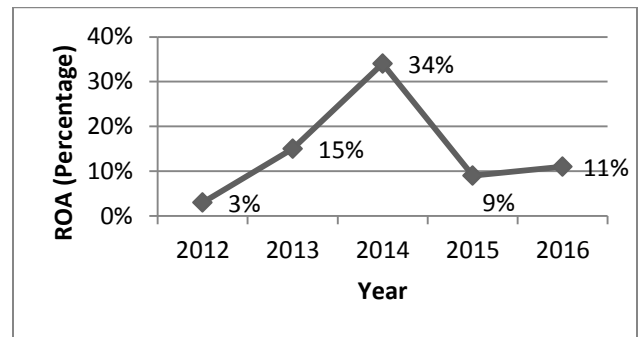
The percentage returns on assets for the manufacturing firms was established and indicated

**Table 5: Correlation analysis**

		Financial status	Technical capability	Suppliers capacity	Suppliers culture
Financial status	Pearson Correlation	1			
	Sig. (2-tailed)				
Technical capability	Pearson Correlation	.438**	1		
	Sig. (2-tailed)	0.000			
Suppliers capacity	Pearson Correlation	.566**	.823**	1	
	Sig. (2-tailed)	0.000	0.000		
Suppliers culture	Pearson Correlation	.244*	.448**	.324**	1
	Sig. (2-tailed)	0.014	0.000	0.000	
Performance	Pearson Correlation	.345**	.641**	.421**	.542**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000

\*\* Correlation is significant at the 0.01 level (2-tailed).

in a trend analysis from the year 2012 to the year 2016. The results indicated an unsteady trend from the year 2012 to 2016. Return on assets steadily increased from 3 percent in 2012 to 34 percent in 2014 but it significantly dropped in 2015 to 9 percent and subsequently improved in 2016 to 11 percent.



**Figure 4: Trends for Returns on Asset**

**Correlation analysis**

The association among the variables used in the study was examined using the correlation analysis whose results are presented in Table 5.

The findings indicated that financial status evaluation had a weak but positive and significant association with performance of manufacturing firms in Kenya (Pearson coefficient = 0.345, Sig = 0.000). The findings implied that when a company evaluates the financial status of its suppliers such as credit worthiness, level of financial accountability and financing mode, it enhances its chances of performing better because there is less risk of the suppliers falling short of supplies in the future. The findings are consistent with Wangui (2014) who established the strategic supplier related factors affecting the performance of the procurement function in the service industry and showed that financial stability of suppliers; past performance

and reliability of suppliers have a significant effect on performance of procurement function.

### Regression Model Estimation

To establish the influence of supplier selection criteria on the performance of manufacturing firms in Kenya, the study adopted a multivariate regression model. The Results were presented in form of tables. The results for the model summary are indicated in Table 6. The regression results show that R was 0.778 which shows that the correlation between the joint predictor variables (financial status evaluation, technical capability evaluation, supplier capacity evaluation and supplier culture evaluation) and dependent variable (performance of manufacturing firms in Kenya) was positive.

**Table 6: Model Summary**

Model summary			
R	R Square	Adjusted R Square	Std. Error of the Estimate
0.778	0.605	0.552	0.254

The F value of 11.489 was significant at a significance value of 0.000 which was less than 0.05 at 5% level of significance. This showed that the overall model was significant. This showed that the combined effect of financial status evaluation,

technical capability evaluation, supplier capacity evaluation and supplier culture evaluation were statistically significant in explaining the performance of manufacturing firms in Kenya.

**Table 7: Analysis of Variance (Overall Model Significance)**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	10.653	4	2.663	11.489	0.000
Residual	6.954	82	0.232		
Total	17.607	86			

**Table 8: Regression coefficients**

Predictor variables	Beta	Std. Error	t	Sig.
Constant	1.443	0.509	2.833	0.008



Financial Status evaluation	1.146	0.399	2.873	0.007
Technical Capability evaluation	0.527	0.211	2.496	0.018
Supplier capacity evaluation	1.688	0.338	4.995	0.000
Supplier culture evaluation	0.594	0.263	2.254	0.032

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**Dependent variable : Effective implementation of procurement systems**

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The final optimal regression model of the study is as presented:

*Performance of manufacturing firms = 1.443 + 1.688 Supplier capacity evaluation + 1.146 Financial status evaluation + 0.527 Technical capability evaluation + 0.594 Supplier culture evaluation*

**CONCLUSION AND RECOMMENDATIONS**

**Financial Status Evaluation**

The descriptive findings showed that the respondents were in agreement that supplier financial status evaluation was being conducted in their companies. The inferential findings further indicated that financial status evaluation has a positive and significant influence on performance of manufacturing firms in Kenya implying that an increase in company evaluation of the financial status of its suppliers such as credit worthiness, level of financial accountability and financing mode leads to an improvement in performance of manufacturing firms significantly.

**Technical Capability Evaluation**

The descriptive findings showed that the respondents agreed that technical capability evaluation is conducted in their companies. The inferential findings also indicated that technical capability evaluation has a positive and significant influence on performance of manufacturing firms in Kenya implying that an increase in company evaluation of the technical capability of its suppliers such as labour force capacity, technical knowledge of operation and staff level of expertise leads to a significant improvement in performance of manufacturing firms in Kenya.

**Supplier Capacity Evaluation**

The descriptive results revealed that the respondents agreed that supplier capacity evaluation is conducted in their companies. The inferential findings further indicated that suppliers capacity evaluation had a positive and significant influence on performance of manufacturing firms in Kenya implying that an increase in a company evaluation of the capacity of its suppliers such as production, storage and distribution capacity leads to a significant improvement in performance of manufacturing firms in Kenya.

**Suppliers Culture Evaluation**

The descriptive findings showed that the respondents agreed that there is supplier culture evaluation among manufacturing firms in Kenya. The inferential findings further indicated that supplier's culture evaluation has a positive and significant influence on performance of manufacturing firms in Kenya implying that an increase in a company evaluation of the culture of its suppliers such as consistency, commitment and customer relationship management, leads to a significant improvement in performance of manufacturing firms in Kenya.

**Performance of Manufacturing Firms in Kenya**

The study findings revealed unsteady trends in market share where a decrease was recorded in the

year 2013 with the only increase being recorded in the year 2014. There was a decrease between the year 2014 and 2016 and these statistics can be attributed to the departure of a number of manufacturing firms such as Cadbury and Eveready from the Kenyan market.

The findings for profits before tax for the manufacturing firms also indicated unsteady trends from the year 2012 to 2016 with steady increase up to the year 2015 and then a decrease in the year 2016. The results for returns on assets indicated an unsteady trend from the year 2012 to 2016. Return on assets steadily increased up to the year 2014 but it significantly dropped in the year 2015. These findings confirm the statement of the problem of the study that the manufacturing sector in Kenya faces a challenge in its performance.

### **Conclusions**

The study concluded that financial status evaluation practices that involve evaluation of suppliers credit worthiness, level of financial accountability and financing mode leads to an improvement in performance of manufacturing firms significantly. The study also concluded that technical capability evaluation practices that aim to evaluate the technical competence suppliers staff such as labour force capacity, technical knowledge of operation and staff level of expertise leads to a significant improvement in performance of manufacturing firms in Kenya.

The study further concluded that supplier's capacity evaluation practices such as evaluation of a supplier's production capacity, supplier's storage capacity and supplier's distribution capacity leads to a significant improvement in performance of manufacturing firms in Kenya. It was also concluded that supplier's culture evaluation practices that involve evaluation of the supplier's consistency, commitment and customer relationship

management, leads to a significant improvement in performance of manufacturing firms in Kenya.

### **Recommendations of the study**

The study recommended that manufacturing firms operating in Kenya should aim to enhance their financial status evaluation practices so as to record an improvement in performance because financial status evaluation helps establish whether the supplier can have continuity in supply before being bankrupt. Some of the financial indicators to be evaluated are credit worthiness, level of financial accountability and financing mode.

The study recommended that manufacturing firms operating in Kenya should aim to enhance their technical capability evaluation practices so as to record an improvement in performance. Some of the technical capabilities to be evaluated in a supplier are labour force capacity, technical knowledge of operation and staff level of expertise so as to enhance quality production by competent staffs.

The study recommended that manufacturing firms operating in Kenya should aim to enhance their supplier capacity evaluation practices so as to record an improvement in performance. There is a need to evaluate the supplier's capacity ranging from the production capacity, storage capacity as well as distribution capacity so as to avoid shortages that may arise due to lack of enough capacity.

The study recommended that manufacturing firms that need to select good suppliers need to conduct suppliers culture evaluation. There is a need to invest in evaluation of the supplier's culture practices of consistency, commitment and customer relationship management since it will help establish the commitment of the suppliers to their course.

## Areas for further Research

The study recommended future research to focus on other supplier evaluation criteria other than the four investigated in this study since the four account for up to 60.50% of the performance of manufacturing firms in Kenya. This therefore means that other factors not studied in this research contribute 39.50% of the performance of manufacturing firms in Kenya. Future studies can focus on establishing these other factors which can

range from other supplier evaluation criteria to non-evaluation criteria. The study also focused on all the firms at Kenya Association of Manufacturers regardless of the sector. Different firms operate under different characteristics according to sector. There is hence a need to establish the influence of supplier evaluation criteria on performance per sector and conduct a comparative study. Furthermore, other studies can focus on a different context other than the manufacturing sector.

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